

Step 1. Get the picture type and  $N_{i,k}$ ,  $Q_{i,k}$ , from parsed MPEG-2 stream.

Step 2. If this is the first time for this picture type, set  $Q_{o,k}$  equal to  $Q'_{i,k}/r$  and go to step 7.

Step 3. Update the accumulated target bits, target complexity, actual bits and actual complexity for this picture type.

Step 4. Compute the complexity ratio  $\alpha_k = \frac{\sum\limits_{j=0}^{k-1}(Q_{o,j}\cdot N_{o,j})}{\sum\limits_{j=0}^{k-1}(Q_{i,j}\cdot N_{i,j})}$ 

Step 5. Compute the bitrate adjustment factor  $B_k = \frac{\sum\limits_{j=0}^{k-1} N_{o,j}}{r \cdot \sum\limits_{j=0}^{k-1} N_{i,j}} = \frac{r_k}{r}$ .

Step 6. Compute  $Q_{o,k} = \frac{\alpha_k \cdot Q_{i,k}}{r} \cdot B_k$ .

Step 7. Encode this frame using  $Q_{o,k}$  as the quantization parameter.

Step 8. Repeat Step 1 to Step 7 for all the remaining frames.

Fig. 2

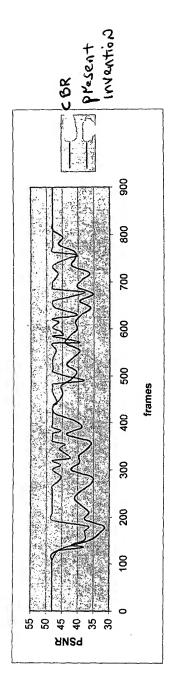
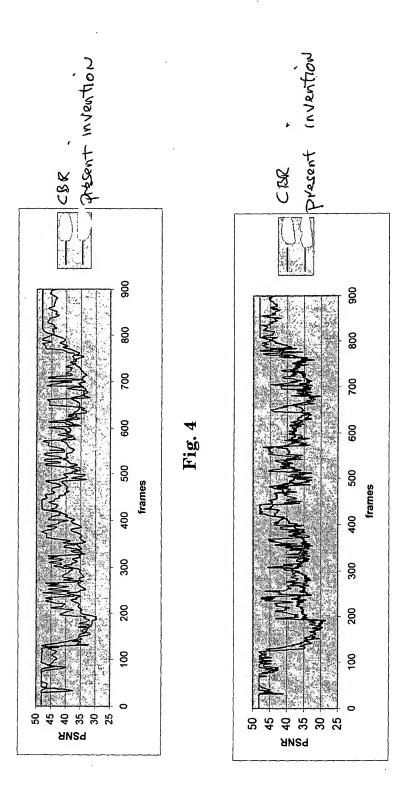


Fig 3



F18.5

25600 START ,602 input MPEG encoded video stream decoding Ls 604 ,60% determining video stream complexity s 60 6a independently determining I P and B complexities in the input stream independently determining I. P. and B complexities to the gratery stream 607a accepting target bit rate Matio (r) 60761 determining actual bit rate ratio 60762 Letermining feedback correction factor culating 660 encoding output vidoo stream

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START 25 700 accepting input MPEG-2 encoded video Stream decodina 706 determining video stream complexity ratio calculating Qo in response complexity ratio encoding output stream into MPEG-4

Fig. 7